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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/640,246	08/16/2000	Dino J. Farina	56320-014(ITED-110)	2908

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Ronald R Demsher
McDermott Will & Emery
28 State Street
Boston, MA 02109

EXAMINER

TABATABAI, ABOLFAZL

ART UNIT

PAPER NUMBER

2625

DATE MAILED: 06/04/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/640,246

Applicant(s)

FARINA, DINO J.

Examiner

Abolfazl Tabatabai

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 August 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krone-Schmid et al (U S 5,561,527) in view of Gardner et al (U S 6,193,936 B1).

Regarding claim 1, Krone-Schmid et al disclose a spray data acquisition system comprising:

a housing for supporting a pumping device whereby the pumping device is responsive to an applied force to generate an aerosol spray plume through an exit port thereon along a spray axis (Column 2, lines 9-40)

an illumination device for illuminating the aerosol spray plume along at least one geometric plane that intersects the aerosol spray plume (Fig. 1 and column 3, lines 4-17)

an imaging device for acquiring data representative of a first interaction between the illumination and the aerosol spray plume along the at least one geometric plane (Fig.1 element 10 and column 2, lines 56-64).

However, Krone-Schmid et al do not teach:

a spray pump actuator, wherein the spray pump actuator is capable of

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controlling a pumping force and a duration of the aerosol spray plume of the pumping device;

On the other hand Gardner et al teach:

a spray pump actuator, wherein the spray pump actuator is capable of controlling a pumping force and a duration of the aerosol spray plume of the pumping device(Column 92, lines 11-23).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Krone-Schmid et al's invention according to the teaching of Gardner et al, reactant delivery apparatuses, because the high pressure spray system are intended to increase the efficiency of the apparatus and increase the rate of the liquid hydrocarbons recovery.

Regarding claim 2, an apparatus for producing image data representative of at least one sequential set of images of a spray plume, each of the images being representative of a density characteristic of the spray plume (i) along a geometric plane that intersects the spray plume, and (ii) at a predetermined instant in time, comprising:

an illuminator for providing an illumination of the spray plume along at least one geometric plane that intersects the spray plume (Column 3, lines 4-17 of Krone-Schmid et al) and

a transducer for generating the image data representative of an interaction between the illumination and the spray plume along the at least one geometric plane (Column 9, lines 11-23 and column 13, lines 49-58 of Gardner et al).

Regarding claim 3, Krone-Schmid et al disclose an apparatus according to claim 2, wherein the sequential set of images is representative of a progression in time (Column 2, lines 9-35).

Regarding claim 4, Gardner et al disclose an apparatus according to claim 2, wherein a first time-sequential set of images corresponds to an axial cross-sectional density characteristic along a first geometric plane substantially normal to a flow direction centerline, and a second time-sequential set of images corresponds to a longitudinal density characteristic along a second geometric plane substantially parallel to and intersecting the flow direction centerline (Column 7, lines 9-19 and column 21, lines 50-67).

Regarding claim 5, Krone-Schmid et al disclose an apparatus according to claim 2, wherein the interaction between the illumination and the spray plume includes optical scattering (Column 1, lines 37-52).

Regarding claim 3, Krone-Schmid et al disclose an apparatus according to claim 2, wherein the interaction between the illumination and the spray plume includes optical absorption (Fig. 1 element 11).

Regarding claim 7, Krone-Schmid et al disclose an apparatus according to claim 2, wherein the transducer includes a digital imaging system for generating and recording the image data (Column 7, lines 4-17).

Regarding claim 8, Krone-Schmid et al disclose an apparatus according to claim 7, wherein the digital imaging system includes an image sampling rate of approximately 500 images per second (Column 3, lines 10-24).

Regarding claim 9, Gardner et al disclose an apparatus according to claim 2, wherein the illuminator includes a laser system having a fan-shaped output pattern (Column 17, lines 30-38 and column 21, lines 50-67).

Regarding claim 10, Gardner et al disclose an apparatus according to claim 9, wherein the fan-shaped output pattern includes a fan angle of approximately 45 degrees, and a laser line thickness of approximately one millimeter at approximately the centerline of the emitted spray (Column 13, lines 21-28 and 33-39).

Regarding claim 11, Krone-Schmid et al disclose an apparatus according to claim 9, wherein the laser system includes a 4-watt, 810 nm laser output (Column 3, lines 18-36).

Claim 12, is similarly analyzed as claim 1.

Regarding to claim 13, Gardner et al disclose a data spray acquisition system according to claim 12, wherein, the first and the second geometric planes are substantially orthogonal (Column 21, lines 58-67)

Other prior art

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U. S. Patent (4,415,265) to Camillo et al is cited for method and apparatus for aerosol particle absorption spectroscopy.

U. S. Patent (5,879,713) to Roth et al is cited for targeted delivery via biodegradable polymers.

U. S. Patent (Re. 34,910) to Funkenbusch et al is cited for carbon-clad zirconium oxide particles

Contact Information

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ABOLFAZL TABATABAI whose telephone number is (703) 306-5917.

The examiner can normally be reached on Monday through Friday from 9:30 a.m. to 7:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Mehta Bhavesh M, can be reached at (703) 308-5246.

Any response to this action should be mailed to:

Assistant Commissioner for Patents
Washington, D.C. 20231

Or faxed to:

(703) 872-9314 (for **formal** communications; please mark
"EXPEDITED PROCEDURE")

Hand delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA. Sixth Floor (Receptionist).


Any inquiry of a general nature or relating to the status of this application should be directed to the Group Receptionist whose telephone number is (703) 305-4750

Abolfazl Tabatabai

Patent Examiner

Group Art Unit 2625

May 29, 2003


Jayanti K. Patel
Primary Examiner